CLAIMS

What is claimed is:

1. A wire comprising a component extending along a longitudinal axis and including at least one first channel extending generally along the longitudinal axis,

wherein the component is selected from a conductor, insulation, a jacket or combinations thereof to form a channeled component,

with the proviso that where the channeled component consists of an insulation, an outer peripheral surface of a conductor forms one side of the at least one first channel.

- 2. The wire of claim 1, wherein the channeled component includes at least a channeled jacket.
- 3. The wire of claim 2, further comprising a core element extending along the longitudinal axis, wherein the channeled jacket surrounds the core element to form an isolated core.
- 4. The wire of claim 3, wherein the isolated core has an overall dielectric constant of less than 3.0.
- 5. The wire of claim 3, wherein the at least one first channel contains a material that has a dielectric constant that differs from a dielectric constant of the jacket.
- 6. The wire of claim 5, wherein the at least one first channel contains air.
- 7. The wire of claim 3, wherein the jacket includes a plurality of channels.
- 8. The wire of claim 7, wherein no one of the plurality of channels has a cross-sectional area greater than about 30% of a cross-sectional areas of the jacket.

- 9. The wire of claim 3, wherein the core element forms one side of the at least one first channel.
- 10. The wire of claim 3, wherein the jacket fully surrounds the at least one first channel.
- 11. The wire of claim 3, wherein the core element forms one side of at least a first channel and the jacket fully surrounds at least one second channel.
- 12. The wire of claim 3, wherein the at least one channel has a cross-sectional area of at least 2.0×10^{-5} in².
- 13. The wire of claim 3, wherein the isolated core has a diameter of less than about 0.25 in.
- 14. The wire of claim 13, wherein the jacket has a thickness of less than about 0.030 in.
- 15. The wire of claim 3, wherein a shape of the at least one first channel is selected from the group consisting of rectangular, trapezoidal and arched.
- 16. The wire of claim 3, wherein the core element is selected from the group consisting of a copper conductor, a fiber optic conductor, an insulated conductor, a twisted pair, insulation, a shield, a separator and combinations thereof.
- 17. The wire of claim 16, wherein the core element includes a channeled insulation, a channeled conductor, or combinations thereof.
- 18. The wire of claim 16, wherein the core element includes a plurality of twisted pairs.
- 19. The wire of claim 18, wherein delay skew is no greater than 15 ns between individual twisted pairs.

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20. The wire of claim 3, wherein the isolated core passes a test selected from the group consisting of NFPA 255, NFPA 259, NFPA 262 or combinations thereof.

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- 21. The wire of claim 20, wherein the isolated core passes all of NFPA 255, NFPA 259 and NFPA 262.
- 22. The wire of claim 3, wherein the isolated core generates at least 10% less smoke when burned according to a UL 910 Steiner Tunnel test then when compared to an isolated core without channels in its jacket.
- 23. The wire of claim 3, wherein the isolated core spreads flame at a rate at least 10% slower when burned according to a UL 910 Steiner Tunnel test when compared to an isolated core without channels in its jacket.
- 24. The wire of claim 3, wherein the jacket has a first portion with a first signal speed and a second portion with a second signal speed, wherein the first signal speed is significantly faster than the second signal speed.
- The wire of claim 24, wherein the first portion includes the at least one first channel. 25.
- 26. The wire of claim 24, wherein the first signal speed is at least about 5% faster than the second signal speed.
- 27. The wire of claim 26, wherein the first signal speed is at least about 10% faster than the second signal speed.
- 28. The wire of claim 1, wherein the channeled component includes at least a channeled conductor.

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- 29. The wire of claim 28, further comprising, insulation extending along the longitudinal axis, wherein the insulation surrounds the channeled conductor to form an insulated, channeled conductor.
- 30. The wire of claim 29, wherein the at least one first channel contains a material that has a dielectric constant that differs from a dielectric constant of the insulation.
- 31. The wire of claim 30, wherein the at least one first channel contains air.
- 32. The wire of claim 30, wherein the conductor includes a plurality of channels.
- 33. The wire of claim 29, wherein two insulated, channeled conductors are twisted together to form a twisted pair.
- 34. The wire of claim 33, further comprising a plurality of the twisted pairs.
- 35. The wire of claim 34, further comprising a jacket surrounding the twisted pairs.
- 36. The wire of claim 35, wherein the jacket is a channeled jacket.
- 37. The wire of claim 29, further comprising a channeled insulation, a channeled jacket or combinations thereof.
- 38. The wire of claim 1, wherein the channeled component includes at least a channeled insulation.
- 39. The wire of claim 38, further comprising a channeled conductor, a channeled jacket or combinations thereof.

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40. A wire comprising:

a core element extending along a longitudinal axis and including a plurality of twisted pairs; and

a jacket surrounding the core element and at least one first channel in the jacket extending generally along the longitudinal axis to form an isolated core.

41. A wire comprising:

a conductor extending along a longitudinal axis;

a component surrounding the conductor, where the component is selected from a jacket, an insulation or combinations thereof;

an inner portion of the jacket, wherein the inner portion has a first signal speed; and an outer portion of the jacket, wherein the outer portion has a second signal speed greater than the first signal speed.

- 42. The wire of claim 41, wherein a composite density of the inner portion is at least about 10% less than a composite density of the outer portion.
- 43. The wire of claim 42, wherein the inner portion includes at least one channel extending along the longitudinal axis.
- 44. The wire of claim 41, wherein the component has a dielectric constant of less than about 3.0.
- 45. The wire of claim 41, wherein the first signal speed is at least about 2% faster than the second signal speed.
- 46. The wire of claim 45, wherein the first signal speed is at least about 5% faster than the second signal speed.

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47. The wire of claim 46, wherein the first signal speed is at least about 10% faster than the second signal speed.

48. The wire of claim 41, wherein the component has a diameter of less than about 0.25 in.

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